



## Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-290



### Navy Multiband Terminal (NMT)

As of FY 2015 President's Budget

Defense Acquisition Management  
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## Table of Contents

Common Acronyms and Abbreviations .....	3
Program Information .....	4
Responsible Office .....	4
References .....	4
Mission and Description .....	5
Executive Summary .....	6
Threshold Breaches .....	7
Schedule .....	8
Performance .....	9
Track to Budget .....	14
Cost and Funding .....	15
Low Rate Initial Production .....	21
Foreign Military Sales .....	22
Nuclear Costs .....	22
Unit Cost .....	23
Cost Variance .....	26
Contracts .....	29
Deliveries and Expenditures .....	30
Operating and Support Cost .....	31

## Common Acronyms and Abbreviations

Acq O&M - Acquisition-Related Operations and Maintenance  
APB - Acquisition Program Baseline  
APPN - Appropriation  
APUC - Average Procurement Unit Cost  
BA - Budget Authority/Budget Activity  
BY - Base Year  
DAMIR - Defense Acquisition Management Information Retrieval  
Dev Est - Development Estimate  
DoD - Department of Defense  
DSN - Defense Switched Network  
Econ - Economic  
Eng - Engineering  
Est - Estimating  
FMS - Foreign Military Sales  
FY - Fiscal Year  
IOC - Initial Operational Capability  
\$K - Thousands of Dollars  
LRIP - Low Rate Initial Production  
\$M - Millions of Dollars  
MILCON - Military Construction  
N/A - Not Applicable  
O&S - Operating and Support  
Oth - Other  
PAUC - Program Acquisition Unit Cost  
PB - President's Budget  
PE - Program Element  
Proc - Procurement  
Prod Est - Production Estimate  
QR - Quantity Related  
Qty - Quantity  
RDT&E - Research, Development, Test, and Evaluation  
SAR - Selected Acquisition Report  
Sch - Schedule  
Spt - Support  
TBD - To Be Determined  
TY - Then Year  
UCR - Unit Cost Reporting

## Program Information

**Program Name**

Navy Multiband Terminal (NMT)

**DoD Component**

Navy

## Responsible Office

**Responsible Office**

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<b>Date Assigned</b>	September 10, 2013

## References

**SAR Baseline (Production Estimate)**

Navy Acquisition Executive (NAE) Approved Acquisition Program Baseline (APB) dated October 4, 2010

**Approved APB**

Navy Acquisition Executive (NAE) Approved Acquisition Program Baseline (APB) dated April 10, 2013

## Mission and Description

The Navy Multiband Terminal (NMT) Program is the next generation maritime military satellite communications terminal. The NMT Program is the required Navy component to the Advanced Extremely High Frequency (AEHF) Program for enhancing protected and survivable satellite communications for Naval forces. NMT multiband capabilities will communicate via two way Ka-Band on Wideband Global Satellite Communication (SATCOM) (WGS) and via X-Band on the Defense Satellite Communications System and WGS. NMT will operate in the Extremely High Frequency (EHF)/AEHF Low Data Rate, Medium Data Rate, and Extended Data Rate communication modes. NMT will sustain the Military SATCOM architecture by providing connectivity across the spectrum of mission areas to include land, air, and naval warfare, special operations, strategic nuclear operations, strategic defense, theater missile defense, and space operations and intelligence. The NMT system will replenish and improve on the capabilities of both the MILSTAR system and WGS system by equipping the warfighters with the assured, jam resistant, secure communications as described in the Operational Requirements Documents (ORD) for the joint AEHF Satellite Communications (AFSPC ORD 004-99, October 2000) and WGS System (Wideband Gapfiller System ORD, May 3, 2000), and the NMT Capability Production Document (NMT CPD 769-6F-08, November 18, 2008). The AEHF system will provide crosslinks within the constellation as well as between AEHF satellites and MILSTAR satellites in the backwards-compatible mode. Mission requirements specific to Navy operations, including threat levels and scenarios, are contained in the AEHF ORD. NMT will be a FORCEnet enabler by providing critical protected bandwidth for warfighter information services.

## Executive Summary

The NMT program's Full Rate Production APB was approved by the Assistant Secretary of the Navy Research, Development, and Acquisition on April 10, 2013. NMT completed its Production Year (PY) 4 buy on June 17, 2013, procuring an additional 20 systems to bring the total FY 2013 buy to 34 systems. Additionally, NMT initiated its PY 5 buy on December 17, 2013, procuring 38 systems. During Over-the-Air and Anti-Jam/Low Probability of Intercept field testing on December 16, 2013, the USS Cole (DDG-67) became the first US Navy platform to achieve operational use of the Advanced Extremely High Frequency (AEHF) capability, using NMT to operate with the Extended Data Rate waveform on an AEHF satellite. NMT is preparing for a Follow-on Operational Test and Evaluation in 4th Quarter FY 2014.

The Advanced Time Division Multiple Access Interface Processor (ATIP) contract for the development and production of ATIP, a 2-layer Ethernet bridging device critical to enhancing NMT functionality, was awarded to Comtech EF Data in Tempe, Arizona, on April 10, 2013. Subsequently, a series of ATIP design reviews were held with Comtech EF Data, culminating with the Critical Design Review on November 4-5, 2013.

There are no significant software-related issues with this program at this time.

## Threshold Breaches

### APB Breaches

**Schedule** ☐

**Performance** ☐

**Cost** ☐

RDT&E ☐

Procurement ☐

MILCON ☐

Acq O&M ☐

**O&S Cost** ☐

**Unit Cost** ☐

PAUC ☐

APUC ☐

### Nunn-McCurdy Breaches

#### Current UCR Baseline

PAUC None

APUC None

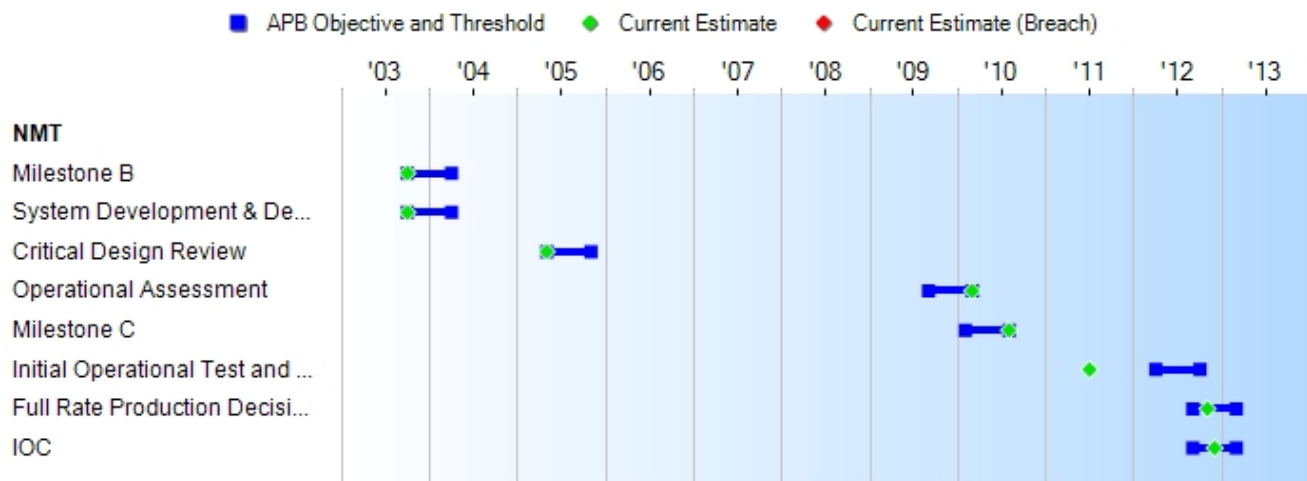
#### Original UCR Baseline

PAUC None

APUC None



## Schedule



Milestones	SAR Baseline Prod Est	Current APB Production Objective/Threshold		Current Estimate
Milestone B	OCT 2003	OCT 2003	APR 2004	OCT 2003
System Development & Demonstration Contract Award	OCT 2003	OCT 2003	APR 2004	OCT 2003
Critical Design Review	MAY 2005	MAY 2005	NOV 2005	MAY 2005
Operational Assessment	SEP 2009	SEP 2009	MAR 2010	MAR 2010
Milestone C	FEB 2010	FEB 2010	AUG 2010	AUG 2010
Initial Operational Test and Evaluation (Start)	APR 2012	APR 2012	OCT 2012	JUL 2011
Full Rate Production Decision Review	SEP 2012	SEP 2012	MAR 2013	NOV 2012
IOC	SEP 2012	SEP 2012	MAR 2013	DEC 2012

### Change Explanations

None

## Performance

Characteristics	SAR Baseline Prod Est	Current APB Production Objective/Threshold		Demonstrated Performance	Current Estimate
NMT Antenna Control Coverage	The NMT shall be capable of pointing and tracking satellites with elevation angles of 0 deg (20 deg for the mast) above the horizon and 360 deg in azimuth with full platform dynamics. In the absence of sea state or submarine dynamics, the antenna shall have the capability to point at satellites down to 0 deg relative to the horizon.	The NMT shall be capable of pointing and tracking satellites with elevation angles of 0 deg (20 deg for the mast) above the horizon and 360 deg in azimuth with full platform dynamics. In the absence of sea state or submarine dynamics, the antenna shall have the capability to point at satellites down to 0 deg relative to the horizon.	The NMT shall be capable of pointing and tracking satellites with elevation angles of 10 deg (20 deg for the mast) above the horizon and 360 deg in azimuth with full platform dynamics.	Demonstrated capability to acquire and track Milstar, WGS, and DSCS satellites.	The NMT shall be capable of pointing and tracking satellites with elevation angles of 0 deg (20 deg for the mast) above the horizon and 360 deg in azimuth with full platform dynamics. In the absence of sea state or submarine dynamics, the antenna shall have the capability to point at satellites down to 0 deg relative to the horizon.
Sustainment					
Materiel Availability	>= 0.95	>= 0.95	>= 0.75	Sub: 0.963 Ship: 0.932 Shore: 0.834	>= 0.95
Operational Availability (Ao)	>0.999 (sub) > 0.999 (ship/shore)	>0.999 (sub) > 0.999 (ship/shore)	> 0.940 (sub) > 0.900 (ship/shore)	Sub: 0.963 Ship: 0.932 Shore: 0.834	>0.999 (sub) > 0.999 (ship/shore)
Reliability					
Materiel Reliability – Mean Time	>= 2200 hrs	>= 2200 hrs	>= 1100 hrs	Ship: 1460 hrs	>= 2200 hrs

Between Failure (MTBF)				(10/15/2012) Shore: 700.5 hrs (10/15/2012) Sub: 216.95 hrs (11/14/2011)	
Materiel Reliability - Mean Time Between Critical Failure (MTBCF)	>= 4200 hrs	>= 4200 hrs	>= 1400 hrs	Ship: 1460 hrs (10/15/2012) Shore: 700.5 hrs (10/15/2012) Sub: 216.95 hrs (11/14/2011)	>= 4200 hrs
Maintainability					
Mean Time to Repair (MTTR)	<= 1 hr	<= 1 hr	<= 3 hrs	Ship: 1.18 hrs (10/15/2012) Shore: 1.25 hrs (11/14/2011) Sub: 4.3 hrs (11/14/2011)	<= 1 hr
Cost					
Ownership Cost	<= \$298M	<= \$298M	<= \$328M	\$223.5M	<= \$298M (Ch-1)
Survivability					
Survive an EMP (AEHF Only)	NMT AEHF/EHF functionality shall be capable of surviving indirect nuclear detonation EMP and thermal blast effects as defined in ELEX-S-488G and SR-3000 Appendix B-8.4	NMT AEHF/EHF functionality shall be capable of surviving indirect nuclear detonation EMP and thermal blast effects as defined in ELEX-S-488G and SR-3000 Appendix B-8.4	NMT AEHF/EHF functionality shall be capable of surviving indirect nuclear detonation EMP and thermal blast effects as defined in ELEX-S-488G and SR-3000 Appendix B-8.4	TBD	NMT AEHF/EHF functionality shall be capable of surviving indirect nuclear detonation EMP and thermal blast effects as defined in ELEX-S-488G and SR-3000 Appendix B-8.4
NMT Multiband Terminal Operations	NMT shall provide AEHF/EHF capability	NMT shall provide AEHF/EHF capability	NMT shall provide AEHF/EHF capability	TBD	NMT shall provide AEHF/EHF capability

	with two-way military Ka-band (ship only), GBS (sub/ship) and X-band (ship /subs) simultaneously. The NMT shall operate in the EHF/AEHF LDR, MDR, and XDR communication modes.	with two-way military Ka-band (ship only), GBS (sub/ship) and X-band (ship /subs) simultaneously. The NMT shall operate in the EHF/AEHF LDR, MDR, and XDR communication modes.	with two-way military Ka-band (ship only), GBS (sub/ship) and X-band (ship/subs). The NMT shall operate in the EHF/AEHF LDR, MDR, and XDR communication modes.		with two-way military Ka-band (ship only), GBS (sub/ship) and X-band (ship /subs) simultaneously. The NMT shall operate in the EHF/AEHF LDR, MDR, and XDR communication modes.
Net-Ready	The system must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for transition to Net-Centric military operations to include: 1) DISR mandated GIG IT standards and profiles identified in the TV-1 2) DISR mandated	The system must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for transition to Net-Centric military operations to include: 1) DISR mandated GIG IT standards and profiles identified in the TV-1 2) DISR mandated	The system must fully support execution of joint critical operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net-Centric military operations to include: 1) DISR mandated GIG IT standards and profiles identified in the TV-1 2) DISR mandated GIG KIPs	Interoperability: NMT is capable of supporting operations in the joint operations environment. The NMT interfaced and operated with other communications systems over Milstar, WGS, and DSCS satellite systems. The NMTs conducted end-to-end communications with other NMTs and legacy EHF and SHF terminals. During testing and ongoing operations,	The system must fully support execution of all operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for transition to Net-Centric military operations to include: 1) DISR mandated GIG IT standards and profiles identified in the TV-1 2) DISR mandated

	GIG KIPs identified in the KIP declaration table 3) NCOW RM Enterprise Services 4) Information assurance requirements resulting in issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and information assurance attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.	GIG KIPs identified in the KIP declaration table 3) NCOW RM Enterprise Services 4) Information assurance requirements resulting in issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and information assurance attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.	identified in the KIP declaration table 3) NCOW RM Enterprise Services 4) Information assurance requirements resulting in issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and information assurance attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.	the Navy sent a large number of e-mails through the Secure Internet Protocol Router Network (SIPRNET) as their preferred mode of communications. Information Assurance: The Navy Information Operations Command performed information assurance testing during the integrated test period.	GIG KIPs identified in the KIP declaration table 3) NCOW RM Enterprise Services 4) Information assurance requirements resulting in issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance and information assurance attributes, data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.
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Classified Performance information is provided in the classified annex to this submission.

#### Requirements Source

Capability Production Document (CPD) dated November 18, 2008

**Change Explanations**

(Ch-1) The ownership cost current estimate changed from \$257.0M to <= \$298M to reflect the cost objective in the April 2013 APB.

**Memo**

Note for Shore (for MTBF and MTBCF): Represents IOT&E and Verification of Correction of Deficiencies testing results; mission impact deemed insignificant due to multiple terminals at Shore site.

Note for Sub (for MTBF, MTBCF and MTTR): Represents IOT&E hours; test duration limit for Submarines.

**Acronyms and Abbreviations**

AEHF - Advanced Extremely High Frequency  
ATO - Approval to Operate  
bps - bits per second  
CEVR - Circularly Equivalent Vulnerability Radius  
CPD - Capability Production Document  
DAA - Designated Approval Authority  
deg - degree  
DISR - DoD Information Standards Registry  
DSCS - Defense Satellite Communication System  
EHF - Extremely High Frequency  
EMP - Electro Magnetic Pulse  
ft - feet  
GBS - Global Broadcast Service  
GIG - Global Information Grid  
HGEC - High Gain Earth Coverage  
HRCA - High Resolution Coverage Area  
hrs - hours  
IOT&E - Initial Operational Test and Evaluation  
IT - Information Technology  
KIP - Key Interface Profile  
LDR - Low Data Rate  
MDR - Medium Data Rate  
MRCA - Medium Resolution Coverage Area  
NCOW RM - Net-Centric Operational Warfare Reference Model  
nm - nautical mile  
NMT - Navy Multiband Terminal  
SHF - Super High Frequency  
sub - submarine  
TTY - Teletype  
TV - Technical View  
WGS - Wideband Global SATCOM  
XDR - Extended Data Rate

## Track to Budget

### RDT&E

Appn		BA	PE
Navy	1319	07	0303109N
Project		Name	
X0728		Navy Multiband Terminal	(Shared)
X9889		Navy Multiband Terminal	(Shared) (Sunk)

### Procurement

Appn		BA	PE
Navy	1810	02	0303109N
Line Item		Name	
321600		Navy Multiband Terminal	

Line item 9020 is a shared control number; therefore, it is not included in the NMT PB baseline.

## Cost and Funding

### Cost Summary

#### Total Acquisition Cost and Quantity

Appropriation	BY2002 \$M			BY2002 \$M	TY \$M		
	SAR Baseline Prod Est	Current APB Production Objective/Threshold	Current Estimate		SAR Baseline Prod Est	Current APB Production Objective	Current Estimate
RDT&E	555.9	564.1	620.5	564.9	631.3	642.4	643.9
Procurement	962.0	964.3	1060.7	976.3	1221.7	1254.3	1278.0
Flyaway	--	--	--	976.3	--	--	1278.0
Recurring	--	--	--	517.7	--	--	671.7
Non Recurring	--	--	--	458.6	--	--	606.3
Support	--	--	--	0.0	--	--	0.0
Other Support	--	--	--	0.0	--	--	0.0
Initial Spares	--	--	--	0.0	--	--	0.0
MILCON	0.0	0.0	--	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	--	0.0	0.0	0.0	0.0
Total	1517.9	1528.4	N/A	1541.2	1853.0	1896.7	1921.9

Confidence Level for Current APB Cost 73% -

The NMT Cost Section is based on the Naval Center for Cost Analysis (NCCA) Service Cost Position (SCP) memo dated November 5, 2012 which was estimated at the Risk Adjusted Mean (RAM). Estimates for major NMT cost drivers included a high amount of variation using right skewed distributions which resulted in a confidence level of 73% at the risk adjusted mean.

Quantity	SAR Baseline Prod Est	Current APB Production	Current Estimate
RDT&E	28	28	28
Procurement	276	250	250
Total	304	278	278

The inventory objective for NMT remains at 276 but due to overall Navy financial initiatives the platform quantity has been reduced to 250.

The NMT unit of measure is defined as a single terminal, to include the Communication Group, Antennas, and Radomes.



## Cost and Funding

### Funding Summary

#### Appropriation and Quantity Summary FY2015 President's Budget / December 2013 SAR (TY\$ M)

Appropriation	Prior	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	To Complete	Total
RDT&E	630.0	12.4	1.5	0.0	0.0	0.0	0.0	0.0	643.9
Procurement	436.6	183.6	272.1	119.1	50.8	71.0	72.1	72.7	1278.0
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2015 Total	1066.6	196.0	273.6	119.1	50.8	71.0	72.1	72.7	1921.9
PB 2014 Total	1093.1	220.2	279.6	130.7	57.1	58.0	64.2	0.0	1902.9
Delta	-26.5	-24.2	-6.0	-11.6	-6.3	13.0	7.9	72.7	19.0

The Office of the Chief of Naval Operations added RDT&E funds based on an urgent Fleet need for NMT to operate in Anti-Access/Area Denial areas prior to review/approval by the Navy's Configuration Steering Board (CSB). The \$105.1M associated with this effort is not included in the Cost and Funding until the requirement is confirmed and approved by the CSB.

Quantity	Undistributed	Prior	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	To Complete	Total
Development	28	0	0	0	0	0	0	0	0	28
Production	0	147	41	19	12	4	5	11	11	250
PB 2015 Total	28	147	41	19	12	4	5	11	11	278
PB 2014 Total	28	152	45	29	24	0	0	0	0	278
Delta	0	-5	-4	-10	-12	4	5	11	11	0

## Cost and Funding

### Annual Funding By Appropriation

#### Annual Funding TY\$

1319 | RDT&E | Research, Development, Test, and Evaluation, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway TY \$M	Non End Item Recurring Flyaway TY \$M	Non Recurring Flyaway TY \$M	Total Flyaway TY \$M	Total Support TY \$M	Total Program TY \$M
2001	--	--	--	--	--	--	3.4
2002	--	--	--	--	--	--	6.6
2003	--	--	--	--	--	--	29.4
2004	--	--	--	--	--	--	64.1
2005	--	--	--	--	--	--	58.1
2006	--	--	--	--	--	--	55.4
2007	--	--	--	--	--	--	77.7
2008	--	--	--	--	--	--	87.7
2009	--	--	--	--	--	--	108.7
2010	--	--	--	--	--	--	78.8
2011	--	--	--	--	--	--	18.1
2012	--	--	--	--	--	--	17.5
2013	--	--	--	--	--	--	24.5
2014	--	--	--	--	--	--	12.4
2015	--	--	--	--	--	--	1.5
<b>Subtotal</b>	<b>28</b>	--	--	--	--	--	<b>643.9</b>

**Annual Funding BY\$****1319 | RDT&E | Research, Development, Test, and Evaluation, Navy**

<b>Fiscal Year</b>	<b>Quantity</b>	<b>End Item Recurring Flyaway BY 2002 \$M</b>	<b>Non End Item Recurring Flyaway BY 2002 \$M</b>	<b>Non Recurring Flyaway BY 2002 \$M</b>	<b>Total Flyaway BY 2002 \$M</b>	<b>Total Support BY 2002 \$M</b>	<b>Total Program BY 2002 \$M</b>
2001	--	--	--	--	--	--	3.4
2002	--	--	--	--	--	--	6.5
2003	--	--	--	--	--	--	28.8
2004	--	--	--	--	--	--	61.0
2005	--	--	--	--	--	--	53.9
2006	--	--	--	--	--	--	49.8
2007	--	--	--	--	--	--	68.2
2008	--	--	--	--	--	--	75.6
2009	--	--	--	--	--	--	92.5
2010	--	--	--	--	--	--	66.1
2011	--	--	--	--	--	--	14.8
2012	--	--	--	--	--	--	14.1
2013	--	--	--	--	--	--	19.4
2014	--	--	--	--	--	--	9.7
2015	--	--	--	--	--	--	1.1
<b>Subtotal</b>	<b>28</b>	--	--	--	--	--	<b>564.9</b>

## Annual Funding TY\$

## 1810 | Procurement | Other Procurement, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway TY \$M	Non End Item Recurring Flyaway TY \$M	Non Recurring Flyaway TY \$M	Total Flyaway TY \$M	Total Support TY \$M	Total Program TY \$M
2010	33	52.9	--	8.7	61.6	--	61.6
2011	54	87.4	--	24.1	111.5	--	111.5
2012	26	56.7	--	50.6	107.3	--	107.3
2013	34	100.3	--	55.9	156.2	--	156.2
2014	41	100.0	--	83.6	183.6	--	183.6
2015	19	100.6	--	171.5	272.1	--	272.1
2016	12	43.1	--	76.0	119.1	--	119.1
2017	4	25.0	--	25.8	50.8	--	50.8
2018	5	33.6	--	37.4	71.0	--	71.0
2019	11	40.1	--	32.0	72.1	--	72.1
2020	11	32.0	--	23.7	55.7	--	55.7
2021	--	--	--	10.0	10.0	--	10.0
2022	--	--	--	7.0	7.0	--	7.0
<b>Subtotal</b>	<b>250</b>	<b>671.7</b>	<b>--</b>	<b>606.3</b>	<b>1278.0</b>	<b>--</b>	<b>1278.0</b>

**Annual Funding BY\$****1810 | Procurement | Other Procurement, Navy**

<b>Fiscal Year</b>	<b>Quantity</b>	<b>End Item Recurring Flyaway BY 2002 \$M</b>	<b>Non End Item Recurring Flyaway BY 2002 \$M</b>	<b>Non Recurring Flyaway BY 2002 \$M</b>	<b>Total Flyaway BY 2002 \$M</b>	<b>Total Support BY 2002 \$M</b>	<b>Total Program BY 2002 \$M</b>
2010	33	43.7	--	7.2	50.9	--	50.9
2011	54	71.1	--	19.7	90.8	--	90.8
2012	26	45.4	--	40.5	85.9	--	85.9
2013	34	79.0	--	44.1	123.1	--	123.1
2014	41	77.4	--	64.7	142.1	--	142.1
2015	19	76.4	--	130.3	206.7	--	206.7
2016	12	32.1	--	56.6	88.7	--	88.7
2017	4	18.3	--	18.8	37.1	--	37.1
2018	5	24.1	--	26.7	50.8	--	50.8
2019	11	28.2	--	22.4	50.6	--	50.6
2020	11	22.0	--	16.3	38.3	--	38.3
2021	--	--	--	6.7	6.7	--	6.7
2022	--	--	--	4.6	4.6	--	4.6
<b>Subtotal</b>	<b>250</b>	<b>517.7</b>	<b>--</b>	<b>458.6</b>	<b>976.3</b>	<b>--</b>	<b>976.3</b>

## Low Rate Initial Production

	Initial LRIP Decision	Current Total LRIP
Approval Date	7/21/2003	2/28/2012
Approved Quantity	90	113
Reference	Milestone B AS	Extended LRIP ADM
Start Year	2010	2010
End Year	2011	2012

The Current Total LRIP Quantity is more than 10% of the total production quantity due to the strong technical performance of NMT during Operational Assessment.

The Total LRIP is also more than 10% in order to ensure a smooth and consistent establishment of production capacity, as well as to take advantage of the significant operational benefits from providing the NMT capability aligned with the satellites with which it will operate.

A Gate-6/Full Rate Production Decision Review was conducted on November 8, 2012 and approved via an Acquisition Decision Memorandum (ADM) on November 30, 2012. This ADM authorized full production and installation for the NMT Program of Record and Other Customers.

Approved Quantity reflects the United States Navy fleet modernization buy, and does not include Other Customer Funds quantities.

**Foreign Military Sales**

Country	Date of Sale	Quantity	Total Cost \$M	Memo
United Kingdom	4/18/2007	12	60.3	
Netherlands	7/26/2006	5	37.9	
Canada	3/30/2006	23	89.0	

**Nuclear Costs**

None

## Unit Cost

### Unit Cost Report

	BY2002 \$M	BY2002 \$M	
Unit Cost	Current UCR Baseline (APR 2013 APB)	Current Estimate (DEC 2013 SAR)	BY % Change

#### Program Acquisition Unit Cost (PAUC)

Cost	1528.4	1541.2	
Quantity	278	278	
Unit Cost	5.498	5.544	+0.84

#### Average Procurement Unit Cost (APUC)

Cost	964.3	976.3	
Quantity	250	250	
Unit Cost	3.857	3.905	+1.24

	BY2002 \$M	BY2002 \$M	
Unit Cost	Original UCR Baseline (DEC 2006 APB)	Current Estimate (DEC 2013 SAR)	BY % Change

#### Program Acquisition Unit Cost (PAUC)

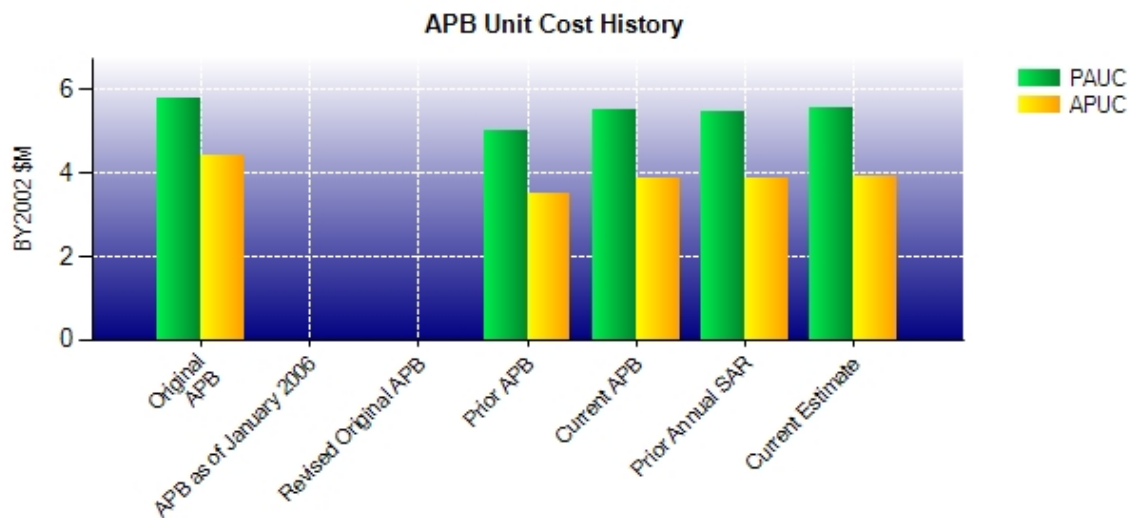
Cost	1923.4	1541.2	
Quantity	333	278	
Unit Cost	5.776	5.544	-4.02

#### Average Procurement Unit Cost (APUC)

Cost	1345.6	976.3	
Quantity	305	250	
Unit Cost	4.412	3.905	-11.49



## Unit Cost History



	Date	BY2002 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	DEC 2006	5.776	4.412	6.970	5.544
APB as of January 2006	N/A	N/A	N/A	N/A	N/A
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	OCT 2010	4.993	3.486	6.095	4.426
Current APB	APR 2013	5.498	3.857	6.823	5.017
Prior Annual SAR	DEC 2012	5.488	3.872	6.845	5.070
Current Estimate	DEC 2013	5.544	3.905	6.913	5.112

## SAR Unit Cost History

### Initial SAR Baseline to Current SAR Baseline (TY \$M)

Initial PAUC Dev Est	Changes								PAUC Prod Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
6.970	0.082	0.637	0.034	0.000	-1.210	0.000	-0.418	-0.875	6.095

### Current SAR Baseline to Current Estimate (TY \$M)

PAUC Prod Est	Changes								PAUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
6.095	0.057	0.296	0.030	0.000	0.435	0.000	0.000	0.818	6.913

**Initial SAR Baseline to Current SAR Baseline (TY \$M)**

Initial APUC Dev Est	Changes								APUC Prod Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
5.544	0.047	0.553	0.038	0.000	-1.295	0.000	-0.461	-1.118	4.426

**Current SAR Baseline to Current Estimate (TY \$M)**

APUC Prod Est	Changes								APUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
4.426	0.060	0.155	0.034	0.000	0.437	0.000	0.000	0.686	5.112

**SAR Baseline History**

Item/Event	SAR Planning Estimate (PE)	SAR Development Estimate (DE)	SAR Production Estimate (PdE)	Current Estimate
Milestone A	N/A	N/A	N/A	N/A
Milestone B	N/A	OCT 2003	OCT 2003	OCT 2003
Milestone C	N/A	FEB 2010	FEB 2010	AUG 2010
IOC	N/A	SEP 2012	SEP 2012	DEC 2012
Total Cost (TY \$M)	N/A	2321.1	1853.0	1921.9
Total Quantity	N/A	333	304	278
Prog. Acq. Unit Cost (PAUC)	N/A	6.970	6.095	6.913

**Cost Variance**

Summary Then Year \$M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Prod Est)	631.3	1221.7	--	1853.0
Previous Changes				
Economic	+1.2	+25.3	--	+26.5
Quantity	--	-76.3	--	-76.3
Schedule	--	+0.4	--	+0.4
Engineering	--	--	--	--
Estimating	+3.0	+96.3	--	+99.3
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+4.2	+45.7	--	+49.9
Current Changes				
Economic	-0.4	-10.3	--	-10.7
Quantity	--	--	--	--
Schedule	--	+8.0	--	+8.0
Engineering	--	--	--	--
Estimating	+8.8	+12.9	--	+21.7
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+8.4	+10.6	--	+19.0
Total Changes	+12.6	+56.3	--	+68.9
CE - Cost Variance	643.9	1278.0	--	1921.9
CE - Cost & Funding	643.9	1278.0	--	1921.9

Summary Base Year 2002 \$M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Prod Est)	555.9	962.0	--	1517.9
Previous Changes				
Economic	--	--	--	--
Quantity	--	-55.9	--	-55.9
Schedule	--	-0.7	--	-0.7
Engineering	--	--	--	--
Estimating	+1.9	+62.6	--	+64.5
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+1.9	+6.0	--	+7.9
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+7.1	+8.3	--	+15.4
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+7.1	+8.3	--	+15.4
Total Changes	+9.0	+14.3	--	+23.3
CE - Cost Variance	564.9	976.3	--	1541.2
CE - Cost & Funding	564.9	976.3	--	1541.2

Previous Estimate: December 2012

RDT&E		\$M	
Current Change Explanations		Base Year	Then Year
Revised escalation indices. (Economic)		N/A	-0.4
Adjustment for current and prior escalation. (Estimating)		+0.4	+0.4
Revised estimate to better align requirements with funding profile. (Estimating)		+6.7	+8.4
RDT&E Subtotal		+7.1	+8.4

Procurement		\$M	
Current Change Explanations		Base Year	Then Year
Revised escalation indices. (Economic)		N/A	-10.3
Adjustment for current and prior escalation. (Estimating)		+3.9	+4.9
Stretch-out of procurement buy profile from FY 2016 to FY 2020. (Schedule)		0.0	+8.0
Revised estimate to better align requirements with funding profile and current installation availability windows. (Estimating)		+4.4	+8.0
Procurement Subtotal		+8.3	+10.6

## Contracts

### Appropriation: Procurement

Contract Name	<b>NMT Production &amp; Deployment</b>
Contractor	Raytheon
Contractor Location	Marlboro, MA 01752
Contract Number, Type	N00039-04-C-0012/3, FFP
Award Date	September 07, 2010
Definitization Date	September 07, 2010

Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price at Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
641.5	N/A	276	492.1	N/A	250	492.1	492.1

### Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the potential reduction in inventory objective from 276 to 250 units. The official NMT inventory objective remains at 276 systems; however, in response to overall Navy financial initiatives, the Office of the Chief of Naval Operations has identified potential changes. For example, the Naval Center for Cost Analysis utilized a total reduction of 26 systems in their most recent Cost Review Board, to reflect up to 16 afloat systems decommissioning, as well as a reduction of 10 ashore systems.

### Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this FFP contract.

## Deliveries and Expenditures

Delivered to Date	Plan to Date	Actual to Date	Total Quantity	Percent Delivered
Development	28	28	28	100.00%
Production	102	102	250	40.80%
Total Program Quantity Delivered	130	130	278	46.76%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	1921.9	Years Appropriated	14
Expended to Date	910.4	Percent Years Appropriated	63.64%
Percent Expended	47.37%	Appropriated to Date	1262.6
Total Funding Years	22	Percent Appropriated	65.70%

The above data is current as of 2/28/2014.

Production Deliveries to Date reflect United States Navy fleet modernization buys, and do not include Other Customer Funds quantities.

## Operating and Support Cost

### NMT

#### Assumptions and Ground Rules

##### Cost Estimate Reference:

The total O&S costs are based on methodologies from the NMT November 2012 Naval Center for Cost Analysis (NCCA) Cost Estimate.

##### Sustainment Strategy:

1. O&S costs are the sum of all costs resulting from the operation, maintenance and support of NMT terminals after acceptance into the Navy Inventory.
2. Operating costs are the sum of the costs of operational personnel, facilities, and software maintenance.
3. Support costs include depot maintenance, sustaining support, In Service Engineering Activity (ISEA), program management, system engineering, system test & evaluation, and facilities costs.
4. The prime equipment inventory at Full Operational Capability (FOC) will consist of 250 systems (131 Ships, 74 Submarines, 32 Shores, 8 Trainers and 5 Test systems), based on the November 2012 NCCA Cost Estimate results. O&S costs are assumed to extend 10 years beyond FOC.

##### Antecedent Information:

The Navy Extremely High Frequency Satellite Program (NESP) and WSC-6 Super High Frequency (SHF) programs were established to satisfy an array of requirements and missions. Throughout the lifecycle of these systems, several of these requirements and missions were no longer needed. The NMT program will assume some of these requirements and missions, as well as satisfy requirements and missions which neither the NESP nor WSC-6 were tasked. Due to this fractional overlap, it is undetermined what fraction of the NESP and WSC-6 program costs could truly be considered antecedent. This undetermined fractional overlap is also the reason the cost data was not readily available when the request came to list NESP, WSC-6, and any other antecedent program costs. Determining what fraction of the NESP and WSC-6 costs could be considered antecedent would take significant time and resources. Therefore, NESP and WSC-6 SHF are antecedent programs to NMT, but program costs are not readily available.



Unitized O&S Costs BY2002 \$K		
Cost Element	NMT Avg. Annual Cost Per System	No Antecedent (Antecedent) N/A
Unit-Level Manpower	19.400	0.000
Unit Operations	0.000	0.000
Maintenance	0.500	0.000
Sustaining Support	12.000	0.000
Continuing System Improvements	0.000	0.000
Indirect Support	19.800	0.000
Other	0.000	0.000
Total	51.700	--

Unitized Cost Comments:

The unit of measure, excluding Unit-Level Manpower, is Total BY 2002 O&S dollars from FY 2012 to FY 2032, divided by the total years (21). These totals were further divided by the total number of NMT systems (250). Quantities and dollar values reflect the methodologies from the November 2012 NCCA Cost Estimate. Unit-Level Manpower costs are not included in the Total O&S costs because they are externally funded.

	Total O&S Cost \$M			
	Current Production APB Objective/Threshold		Current Estimate	
	NMT		NMT	No Antecedent (Antecedent)
Base Year	157.6	173.4	169.3	N/A
Then Year	223.5	N/A	246.7	N/A

Total O&S Costs Comments:

The O&S Cost variance from the previous SAR is driven by a change in FOC date, which is caused by FY 2013 - 2017 Other Procurement, Navy funding reductions.

O&S Cost Variance		
Category	Base Year 2002 \$M	Change Explanation
Prior SAR Total O&S Estimate December 2012	157.40	
Cost Estimating Methodology	0.00	
Cost Data Update	0.00	
Labor Rate	0.00	
Energy Rate	0.00	
Technical Input	0.00	
Programmatic/Planning Factors	+11.90	FOC moved from FY 2019 to FY 2022, causing an extension to the O&S tail and corresponding cost increase.
Other	0.00	
Total Changes	11.90	
Current Estimate	169.39	

The decrease in O&S costs from 2011 to 2012 was a result of the November 2012 Service Cost Position.

**Disposal Costs:**

The Total NMT Disposal Costs are \$0.3M in BY 2002 and \$0.4M in TY. Total O&S costs in the APB include demilitarization and disposal, but the costs are not included in the Current Estimate.